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Federal Highway Administration

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December 2002

**NHI Course No. 132070**

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# **Drilled Shaft Foundation Inspection**

## **PARTICIPANT WORKBOOK**



*National Highway Institute*

## **NOTICE**

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16. ABSTRACT This manual is the Participant's Workbook for FHWA NHI course No. 132070 Drilled Shaft Foundation Inspection. This manual contains copies of each slide, room for student note taking, and some reference notes. A copy of this workbook is provided to each participant.			
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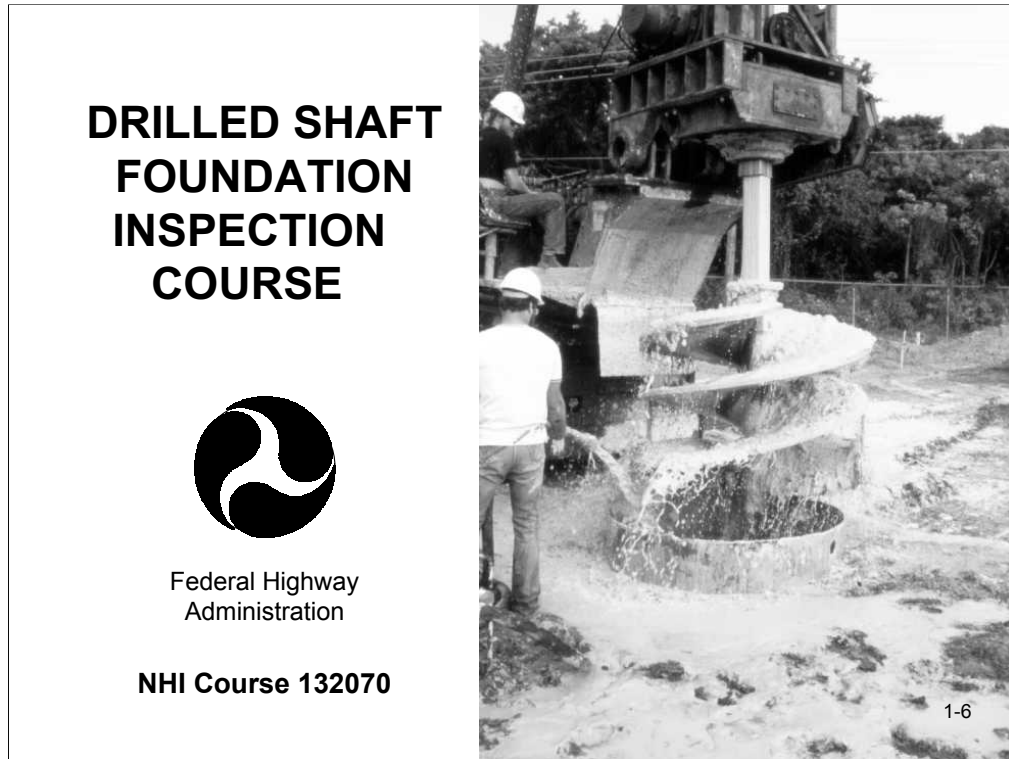
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# LESSON 1

## WELCOME AND INTRODUCTION


### DRILLED SHAFT FOUNDATION INSPECTION

DECEMBER 2002

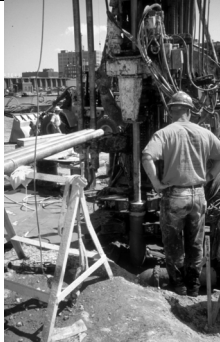


Welcome to the Drilled Shaft Foundation Inspection course.






# UPDATE ....



# FHWA GEOTECHNICAL PROGRAM

9/20/2002



1-7

# ***National Geotechnical***

## **INSPECTOR QUALIFICATION**



1-8

## Objective

The development of a nationally accepted qualification program that will serve to improve quality, ensure uniformity and establish a minimum standard of construction for geotechnical work.

1-9

# Inspector Qualification

- NATIONAL  
State/Industry/FHWA initiative  
(Office of Infrastructure/NHI)
- Driven Piling, Drilled Shafts,  
Subsurface Investigations,  
MSEW and RSS, Soil Nail  
Walls/ Anchored Walls, Earth  
Embankments
- Coordinated with National  
Regional Certification Groups

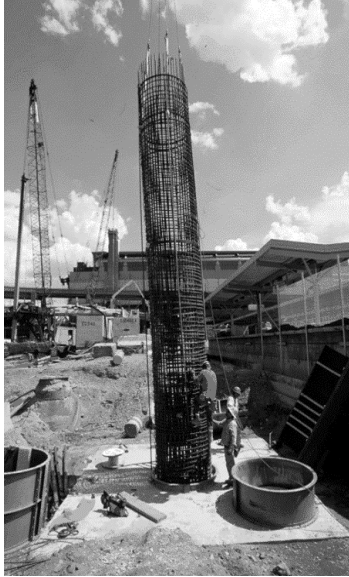


## Current Status

- Endorsed by AASHTO Subcommittees (Bridges, Materials, Construction)
- Task Group has developed a Strategic Plan for the development of 6 modules.
- Development underway for Drilled Shafts and Driven Piles Implementation Jan 2003



## **Modules 1 & 2: Drilled Shafts & Driven Piles**



- To be modeled after Florida Program
- Will include inspection of Drilled Shaft and Driven Pile Construction
- Training modules to be administered by the Regional Certification Groups

1-12

# Task Group

## **Representatives of Regional Certification Groups:**

- **Midwest, Missouri DOT, Mike Fritz**
- **MidAtlantic, Virginia DOT, Ashton Lawler**
- **New England, Vermont AOT, Chris Benda**
- **Southeast, Florida DOT, Sastry Putcha**
- **Western, Oregon DOT, Jan Six**
- **Western, Idaho DOT, Garth Newman**

## **FHWA:**

- **Peter Osborn, RI Division**
- **Sam Mansukhani, MRC**
- **Charles Luedders, WRC**

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# Industry Technical Support

- ADSC, James Cahill
- PDCA, George Goble
- DFI, Geordie Compton

1-14



# Bridge Website

[www.fhwa.dot.gov/bridge](http://www.fhwa.dot.gov/bridge)

1-15

# **LESSON 1**

## **WELCOME & INTRODUCTION**

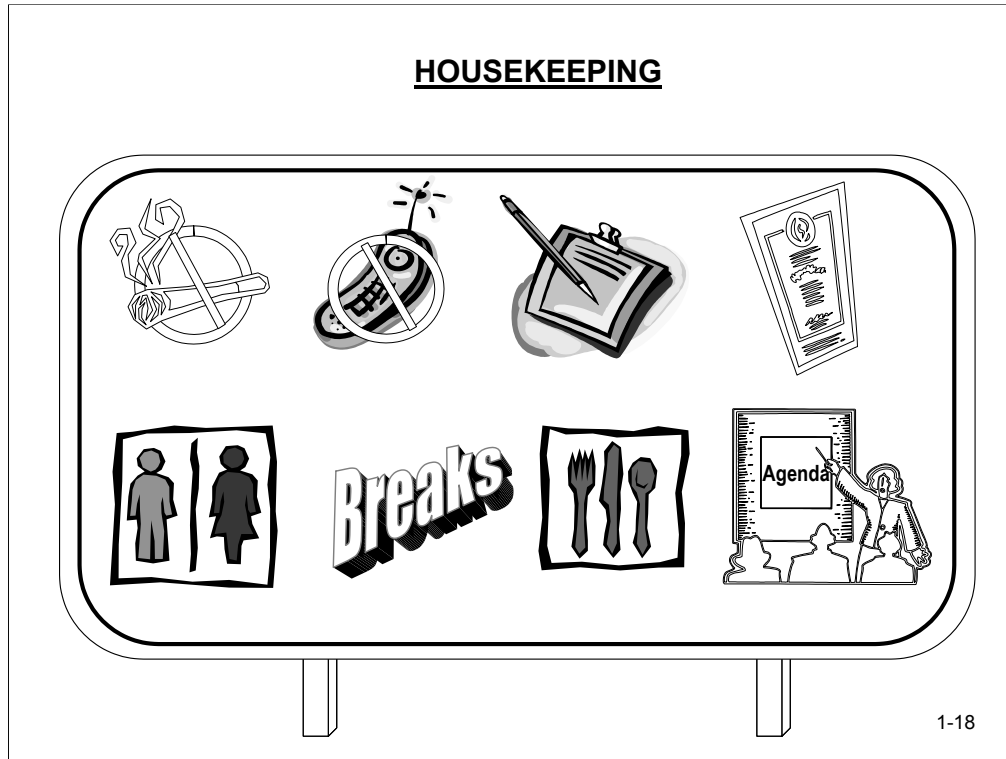
1-16

This indicates the start of a new lesson, Lesson 1 Welcome.

## **LEARNING OBJECTIVES**

- **Describe the NHI active learning approach**
- **Identify who is involved, what are their backgrounds, and why are we here**

1-17



Please- No Smoking in the facility- Please smoke only in designated areas.

Please turn off cell phones and pagers to avoid interruptions to your fellow classmates.

Make sure you have signed in at the registration desk, where you can also get information on any CEUs.

### **Agenda**

3 Days

- 8:00 AM to 5:00 PM, Day 1 & 2
- Homework Assignments
- Day 3, Morning Review Session: Exam in late morning- Exam is 50 questions with a two hour time allocation.

## **Your Instructors**

1-19

Lead Instructor-

Asst. Instructor-

**Now, please tell us who you are.**

1-20

### **RESOURCES**

- **The Participant Workbook**
- **Drilled Shafts: Construction Procedures & Design Methods FHWA Publication No. FHWA-IF-99-025**
- **Drilled Shaft Inspector's Manual**  
[www. dfi.org](http://www.dfi.org)  
[www. adsc-iafd.com](http://www.adsc-iafd.com)
- **Your Experienced Inspectors and State DOT Resources**
- **Math refresher CD under development**

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The primary course material is contained within the Participant Manual, which is the manual in front of you.

The FHWA Guide Specifications were utilized as the “specifications” for the course. These guide specifications can be found in FHWA Publication No. FHWA-IF-99-025, Drilled Shaft Construction Procedures & Design Methods, Chapter 15.

There are many additional resources available to you from a variety of organizations and agencies including:

**Deep Foundations Institute (DFI)**

120 Charlotte Place, Third Floor

Englewood Cliffs, N.J. 07632

Phone: (201) 567-4232

Fax: (201) 567-4436

**Association of Drilled Shaft Contractors**

P.O. Box 550399


Dallas, TX 75355-0339

Phone: (214) 343-2091

Fax: (214) 343-2384

In addition, many State Departments of Transportation may have related material.

## Your Manual



## COURSE KEYS

**WE CAN'T HELP IF  
YOU DON'T ASK**

**COMPLETE THE  
EVALUATION  
SHEET**

**Top of the page is the slide currently on the screen. Follow along with the instructor.**

**Bottom of page may, or may not, contain notes, tips, specifications, etc.**

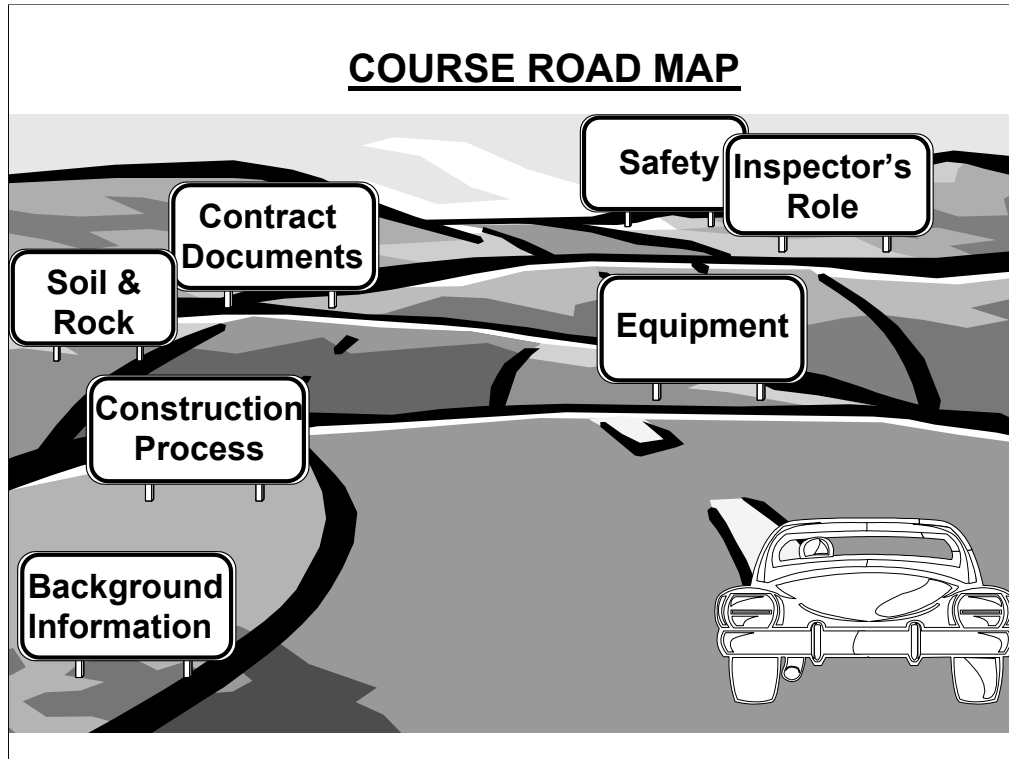
1-22

The dumbest question is the question not asked. If you have a question, ask it, because there are probably 3 or 4 other participants with the same question in mind. Remember, our goal is to assist you in gaining the information necessary to pass the Qualification examination.

Many times, we, the course developers, believe we have developed the course in an easy to understand and comprehensive fashion. However, it is your perception that counts, so, please complete the Evaluation sheets for the course. The majority of the time, changes for the better in courses do not come from the designers, but from the participants.

Your manual is setup for ease in following the course. The top of the page contains the slide that is currently being displayed on the screen. The bottom contains tips, comments, illustrations, or specifications that in general are related to the slide subject matter and the Instructor's commentary.





**COURSE CONTENT**

- 1. Welcome and Introduction**
- 2. Course Overview**
- 3. Dry Shaft Construction**
- 4. Wet Shaft Construction**
- 5. Cased Shaft Construction**

1-24

**COURSE CONTENT  
CONTINUED**

- 6. Auger Rigs & Equipment**
- 7. Soils & Rock Identification**
- 8. Construction Documents**
- 9. Assemble your “Tool Box”**
- 10. Contractor and Equipment arrive on Site**

1-25

**COURSE CONTENT  
CONTINUED**

**11. Shaft Excavation and Cleaning**

**12. Reinforcing Cage**

**13. Concrete Operations**

**14. Post Installation & Integrity  
Testing**

**15. Safety Concerns**

1-26

**WHY A QUALIFICATION COURSE?**

**To comply with Code of Federal Regulations (CFR 637) and provide instruction to qualify personnel for Drilled Shaft Construction Inspection**

**This regulation states:**

**“Each State shall have Quality Assurance Procedures.....”**

**“All sampling and testing data to be used in the acceptance decision... shall be executed by qualified sampling and testing personnel.”**

1-27

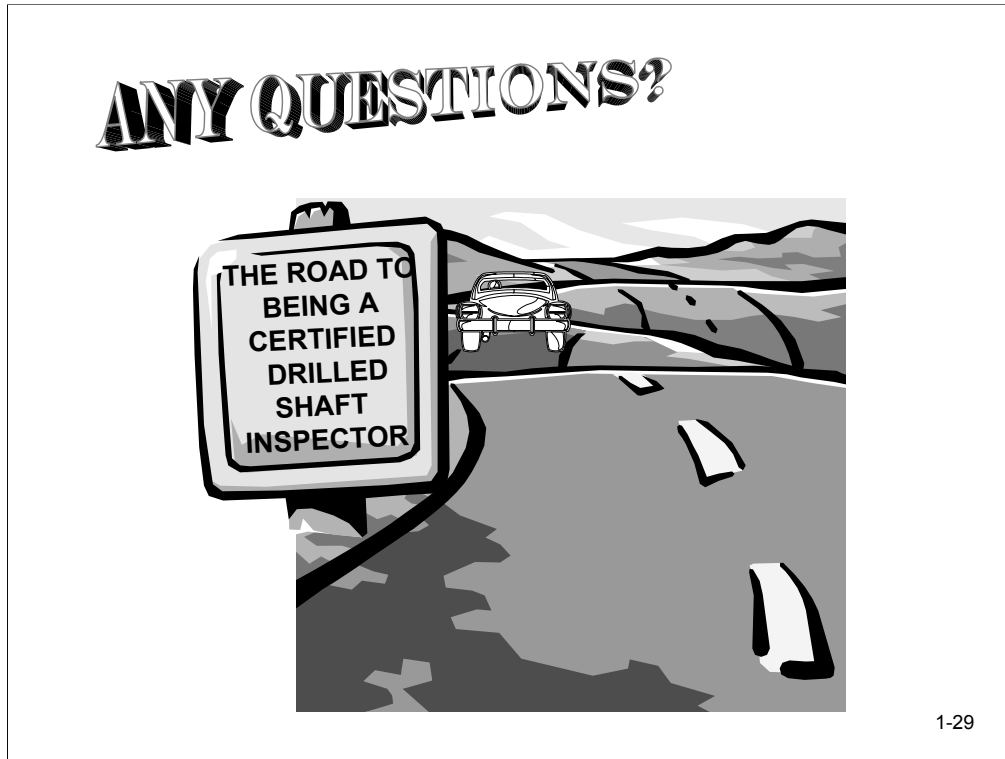
This type of qualification training is occurring across the nation. Virtually every state has some sort of training program that they initiated to comply with the Code of Federal Regulations.

CFR 637 requires that personnel conducting sampling and testing on transportation projects shall be Qualified. The process for accomplishing this goal was left up to the individual states and therefore, some have their own Programs, while others have formed “consortiums” consisting of several states, utilizing a common Program.

## **LEARNING OBJECTIVES**

- **Describe the NHI active learning approach**
- **Identify who is involved, what are their backgrounds, and why are we here**

1-28



Do you have a question in mind? Ask it!!

## NOTES

[illegible]